

# Technical Drawing

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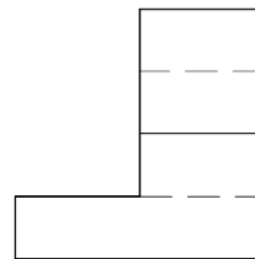
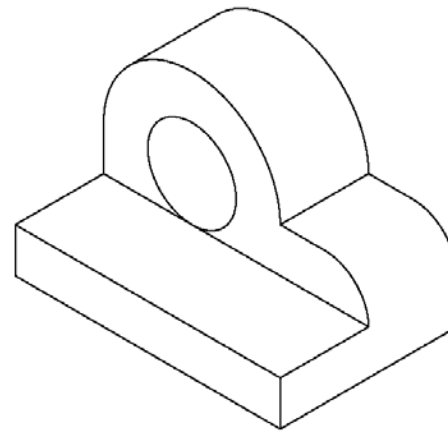
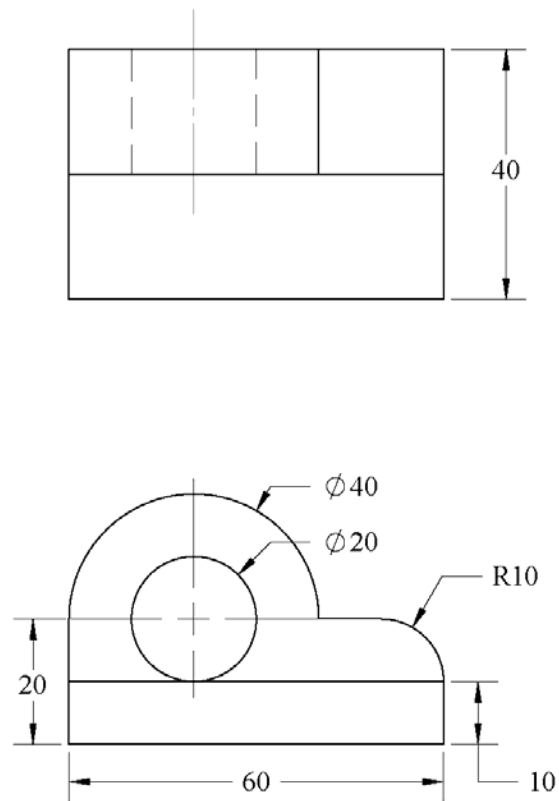
- Technical Drawing
  - Also known as drafting, is the technique of creating engineering plans that visually communicate how something functions or has to be constructed
- Drafting is the visual language of industry and engineering
  - Communicate designs

# What is in a Drawing?

- A “detail drawing” must be concise, only displaying information needed to create the part
  - Size
  - Type of material
  - Finish
  - Tolerance
- The standard for producing detail drawings is controlled by the American National Standards Institute (ANSI)



# Engineering Drawing

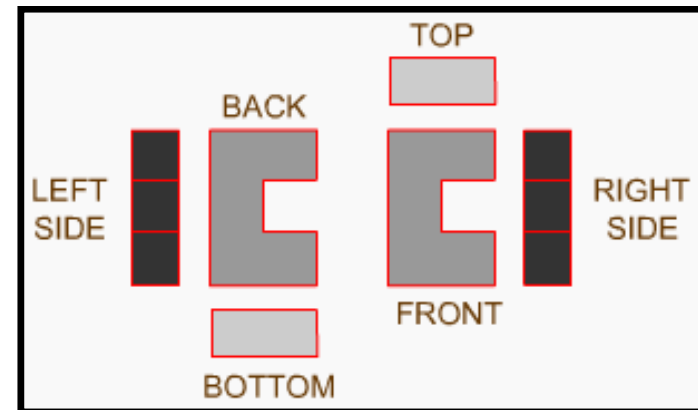
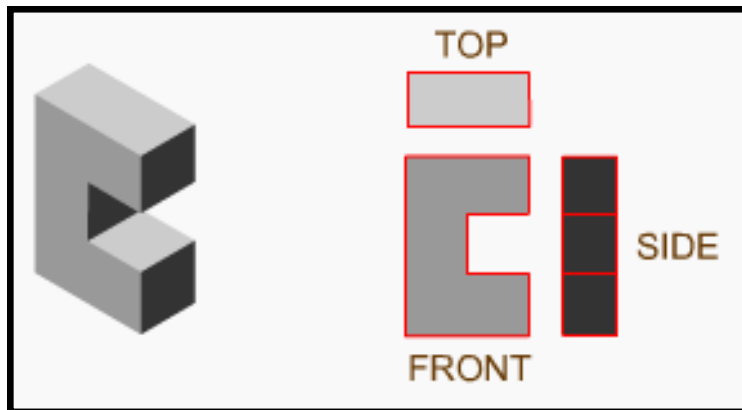


# Methods

- Sketching
  - Is a quickly executed freehand drawing that is not intended as a finished work
- Instrument
  - Use of technical drawing tools to draw lines, curves, and circles
- Computer Aided Design (CAD)
  - Refers to computer programs that allow engineers to create precise two dimensional (2D) or 3 dimensional (3D) models of their design ideas

# Orthographic

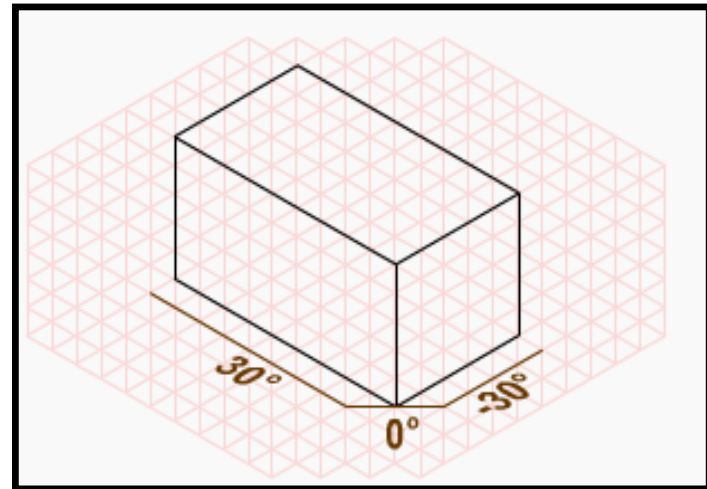
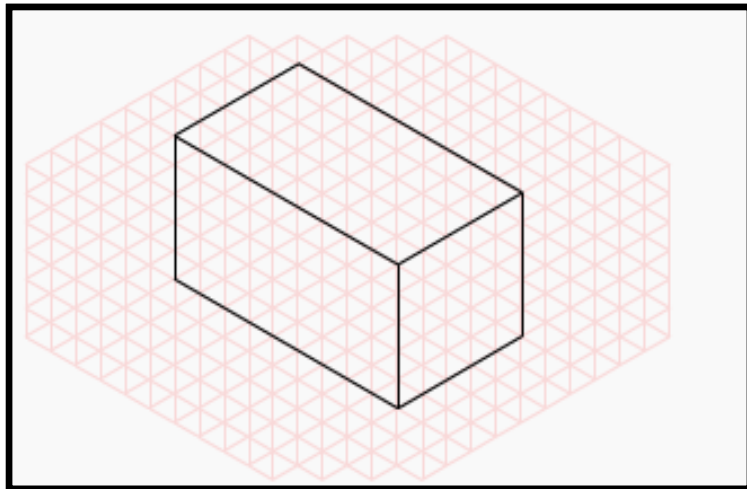
- Orthographic Drawing
  - Show the top, sides, and bottom of an object
  - They are also called “multi-view” drawings
  - They are always drawn to scale
  - Most common standard views: Front, Top, Side



# Isometric

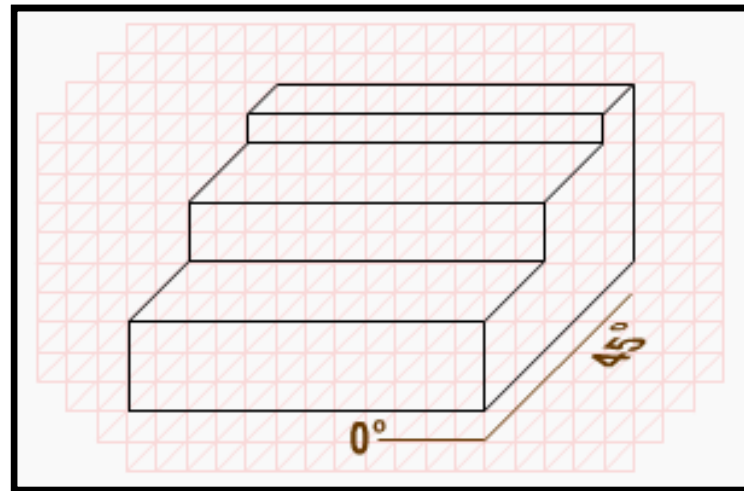
- Isometric Drawing

- Object is shown from the front, right, and top in equal proportion (as looking at it from the upper right corner)



# Technical Oblique

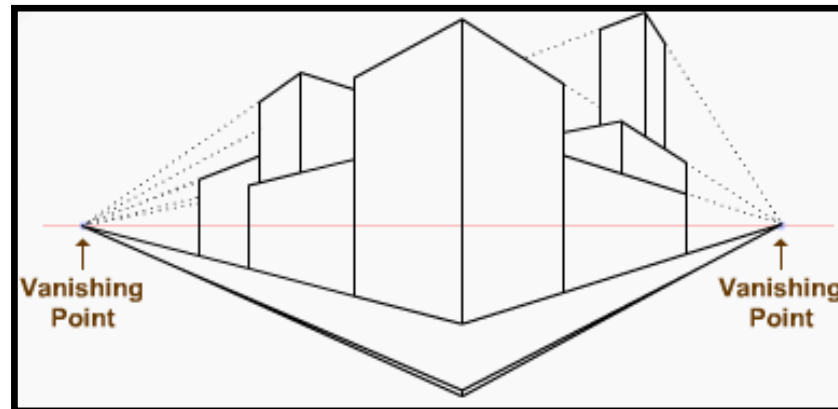
- Oblique Drawing
  - Focus on the front of the object but also show the top and one side, and are drawn at a  $45^\circ$  angle
  - These drawings give the impression of depth, but they appear distorted and the dimensions are not drawn to scale





# Perspective Drawing

- Perspective Drawing
  - Shows an object as it would appear to our eye, with lines going into the distance converging at an imaginary “vanishing point” on the horizon
  - Artists like these drawing but they are not very useful to engineers because they are not drawn to scale



# Activity: Sketch

- Sketch the object:
  - Measure the object
  - Write down dimensions
  - Create an *Orthographic* drawing (front, top, and side view) using graph/grid paper
  - Do not use pen

# Activity: Can YOU Build it?

- Designer
  - Will have 10 minutes to write building instructions
- Builder
  - Will have 10 minutes to build the object using the building instructions